Instructions - Parts List

309295

Rev. A

This manual contains important warnings and information.
READ AND KEEP FOR REFERENCE.

INSTRUCTIONS

GRACO

First choice when quality counts™

MANUAL ELECTROSTATIC

PRO™ Xs4 AA Air-Assisted Spray Gun

100 psi (0.7 MPa, 7 bar) Maximum Air Inlet Pressure

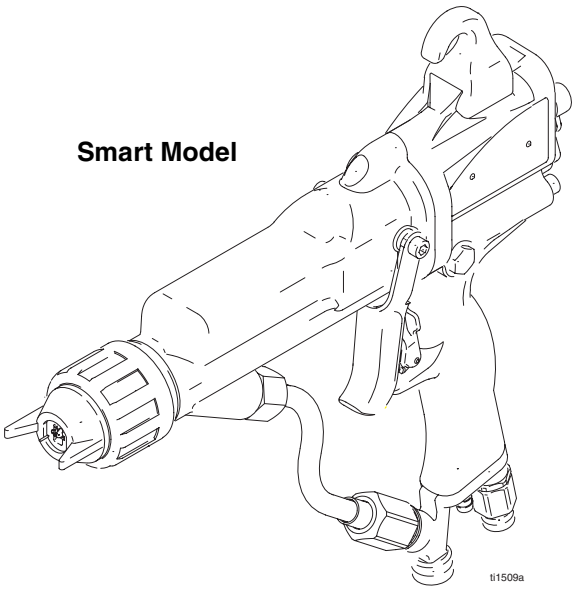
3000 psi (21 MPa, 210 bar) Maximum Working Fluid Pressure

See page 3 for a List of Models

U.S. Patent Pending

For use with Class I Group D or Class II 2 G spray materials.

Smart Model



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Standard Model

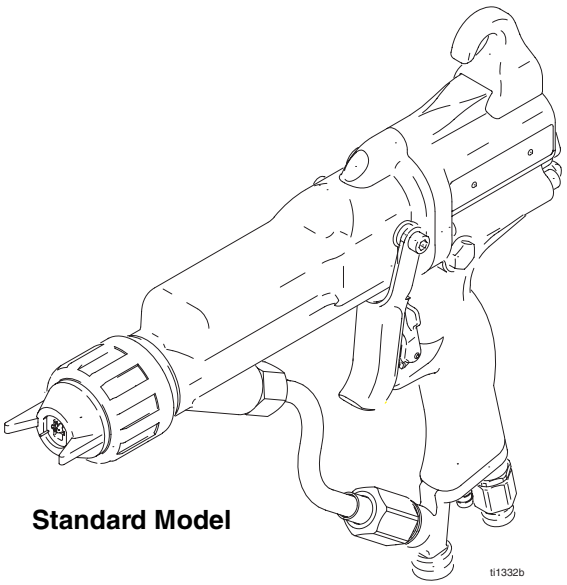

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Table of Contents

List of Models 3
Symbols 3
Warning Symbol 3
Caution Symbol 3
Warning 4
Introduction 7
How the Electrostatic AA Spray Gun Works 7
Gun Overview 8
Installation 9
Install the System 9
Warning Sign 9
Ventilate the Spray Booth 9
Connect the Air Line 11
Connect the Exhaust Tube 11
Connect the Fluid Line 12
Filter the Fluid 12
Select a Spray Tip 12
Grounding 13
Check Electrical Grounding 14
Check Fluid Resistivity 15
Check Fluid Viscosity 15
Operation 16
Low Voltage Adjustment (Smart Guns Only) . . . 16
Maintenance 17
Flush the Spray Gun 17
Electrical Tests 19
Test Gun Resistance 19
Test Power Supply Resistance 20
Test Barrel Resistance 21
Troubleshooting 22
Spray Pattern Troubleshooting 22
Gun Operation Troubleshooting 23
Electrical Troubleshooting 24
Repair 25
Pressure Relief Procedure 25
Prepare the Gun for Service 26
Tools Needed 26
Tip Guard, Air Cap, Spray Tip, or Seat Housing Replacement 27
Electrode Replacement 29
Fluid Tube Replacement 30
Fluid Filter Removal 30
Fluid Needle Replacement 31
Barrel Removal 32
Barrel Installation 32
Power Supply Removal and Replacement 33
Turbine Alternator Removal and Replacement . . . 34
Atomizing Air Adjustment Valve Repair 35
Air Valve Repair 36
ES ON/OFF Valve Repair 37
Parts 38
Accessories 46
Air Line Accessories 46
Fluid Line Accessories 46
Gun Accessories 47
Miscellaneous Accessories 47
Spray Tip Selection Chart 48
Technical Data 49

List of Models

Part No.	Model	Description	Operation Manual
244572	PRO Xs4 AA	Manual Air-Assisted Spray Gun	309296/ 3W9296/3Z9296
244573	PRO Xs4 AA	Manual Air-Assisted Spray Gun with smart display	309296/ 3W9296/3Z9296

Symbols

Warning Symbol

⚠ WARNING

This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol

⚠ CAUTION

This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

Improper grounding, poor air ventilation, open flames, or sparks can cause a hazardous condition and result in a fire, explosion, or electric shock.

- Electrostatic equipment must be used only by trained, qualified personnel who understand the requirements in this manual.
- Ground the equipment, all personnel in or close to the spray area, the object being sprayed, and all conductive objects in the spray area. See **"Grounding"**, page 13.
- Check gun resistance daily. See **"Test Gun Resistance"** on page 19.
- If there is any static sparking while using the equipment, **stop spraying immediately.** Identify and correct the problem.
- Provide fresh air ventilation to avoid buildup of flammable or toxic vapors. Interlock the gun air supply to prevent operation unless ventilating fans are on. See **"Ventilate the Spray Booth"** on page 9.
- Use solvents that comply with local regulations. Flash point should be higher than 100°F (38°C).
- Do not flush with the gun electrostatics on. Do not turn on the gun electrostatics until all solvent is removed from the system.
- Keep the spray area free of debris and rags. Do not store solvent and flammable fluids in the spray area.
- Eliminate all ignition sources such as pilot lights, cigarettes, and static arcs from plastic drop cloths. Do not plug in or unplug power cords or turn lights on or off in the spray area.
- Use only non-sparking tools to clean residue from the booth and hangers.

⚠ WARNING

Fluid Injection Hazard

Spray from the gun, hose leaks, or ruptured components can inject fluid into your body and cause an extremely serious injury, including the need for amputation. Splashing fluid in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but is a serious injury. **Get immediate medical attention.**
- Do not point the gun at anyone or at any part of the body. Do not put your hand or fingers over the spray tip. Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Never spray without the tip guard in place.
- Lock the trigger safety when you stop spraying.
- Follow the **"Pressure Relief Procedure"**, page 25, when you stop spraying and before cleaning, checking, or repairing equipment.
- Check the hoses and couplings daily. Replace worn, damaged, or loose parts immediately. Permanently coupled hoses cannot be repaired; replace the entire hose.
- Tighten all fluid connections before each use.

Toxic Fluid Hazard

Hazardous fluids or toxic fumes can cause a serious injury or death if splashed in the eyes or on the skin, swallowed, or inhaled.

- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of the hazardous fluid according to all local, state, and national guidelines.
- Wear appropriate protective clothing, gloves, eyewear, and respirator.

⚠ WARNING

Equipment Misuse Hazard

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in a serious injury.

- This equipment is for professional use only.
- Read all manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain, call your Graco distributor.
- Do not alter or modify equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. Maximum working fluid pressure of this equipment is **3000 psi (21 MPa, 210 bar).**
- Use fluids and solvents that are compatible with the equipment wetted parts. See the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Route the hoses away from traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 180°F (82°C) or below -40°F (-40°C).
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electrical, and other safety regulations.

Introduction

How the Electrostatic AA Spray Gun Works

⚠ WARNING

Fluid Injection Hazard

Remember, this is not an air spray gun. For your safety, read and follow all Warnings in this manual.

The air-assisted spray gun combines airless and air spraying concepts. The spray tip shapes the fluid into a fan pattern, as does a conventional airless spray tip. Air from the air cap further atomizes the fluid and completes the atomization of the fluid tails to produce a uniform pattern.

As the gun is triggered, part of the regulated air operates the turbine and the rest of the air atomizes the fluid being sprayed. The turbine generates power, which is converted by the power cartridge to supply high voltage current to the gun's electrode.

The regulated air that is directed to the air cap can be further controlled using the gun's atomizing air adjustment valve. This valve can be used to restrict air flow to the air cap while maintaining sufficient air flow to the turbine.The atomizing air adjustment valve does not control pattern width. To change pattern width, a new tip size must be used.

The high working fluid pressure of this gun provides the power needed to atomize higher solids materials.

The gun's internal power supply provides high voltage current. The fluid is electrostatically charged as it passes the electrode. The charged fluid is attracted to the grounded workpiece, wrapping around and evenly coating all surfaces.

NOTE: For airless atomization, if desired, turn the gun's atomizing air adjustment valve completely off. Closing this valve does not affect turbine operation.

Gun Overview

The electrostatic gun includes the following controls (see Fig. 1).

- ***Air cap/tip guard and spray tip.*** Never spray without the tip guard. See page 48 for spray tip sizes.
- ***Trigger safety lock.*** Prevents the gun from spraying.
- ***Atomizing AIR adjustment valve.*** Adjusts atomizing air.
- ***ES ON/OFF valve.*** Turns electrostatics ON (I) or OFF (0).
- ***ES INDICATOR (standard gun only).*** Green when ES is ON (I).
- ***Voltage/current DISPLAY (smart models only).*** Shows voltage (V) and current (A). Green=spray, yellow/red=see Troubleshooting, page 24.
- ***ES HI/LO switch (smart models only).*** Sets voltage to HI or LO (factory settings).
- ***LO voltage adjustment (smart models only).*** Remove plug to adjust to four settings.

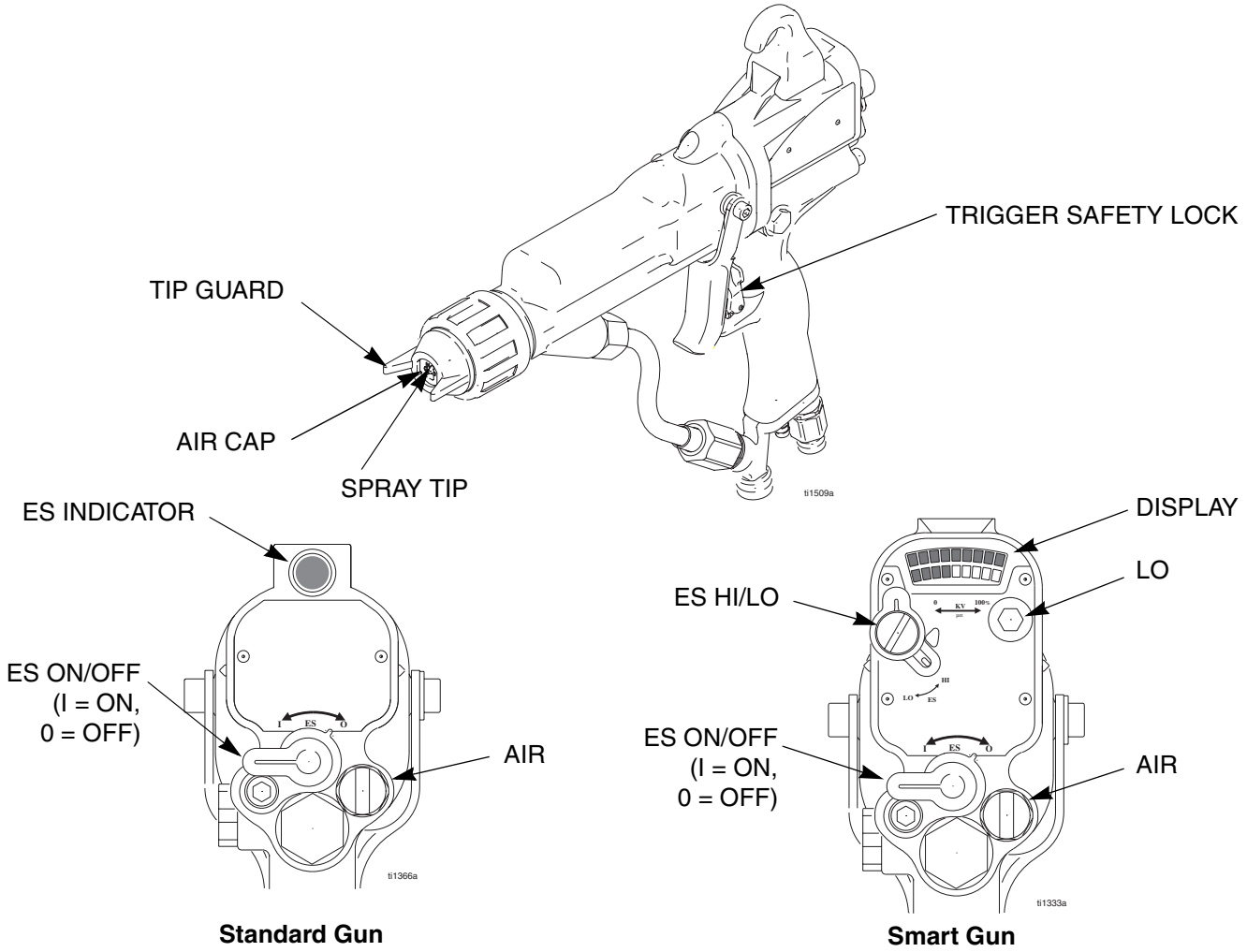


Fig. 1. Gun Overview

Installation

Install the System

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

Installing and servicing this equipment requires access to parts which may cause electric shock or other serious injury if work is not performed properly.

- Do not install or service this equipment unless you are trained and qualified.
- Be sure your installation complies with National, State and Local codes for the installation of electrical apparatus in a Class I, Group D or a Class II 2G Hazardous Location.
- Comply with all applicable local, state, and national fire, electrical, and other safety regulations.

Fig. 2 shows a typical electrostatic air-assisted spray system. It is not an actual system design. For assistance in designing a system to suit your particular needs, contact your Graco distributor.

Warning Sign

Mount warning signs in the spray area where they can easily be seen and read by all operators. An English Warning Sign is provided with the gun.

Ventilate the Spray Booth

⚠ WARNING

Flammable or Toxic Vapor Hazard

Provide fresh air ventilation to avoid the buildup of flammable or toxic vapors. Do not operate the gun unless ventilation fans are operating.

Electrically interlock the gun air supply with the ventilators to prevent gun operation without ventilating fans operating. Check and follow all National, State, and Local codes regarding air exhaust velocity requirements.

NOTE: High velocity air exhaust will decrease the operating efficiency of the electrostatic system. Air exhaust velocity of 100 ft/min (31 linear meters/minute) should be sufficient.

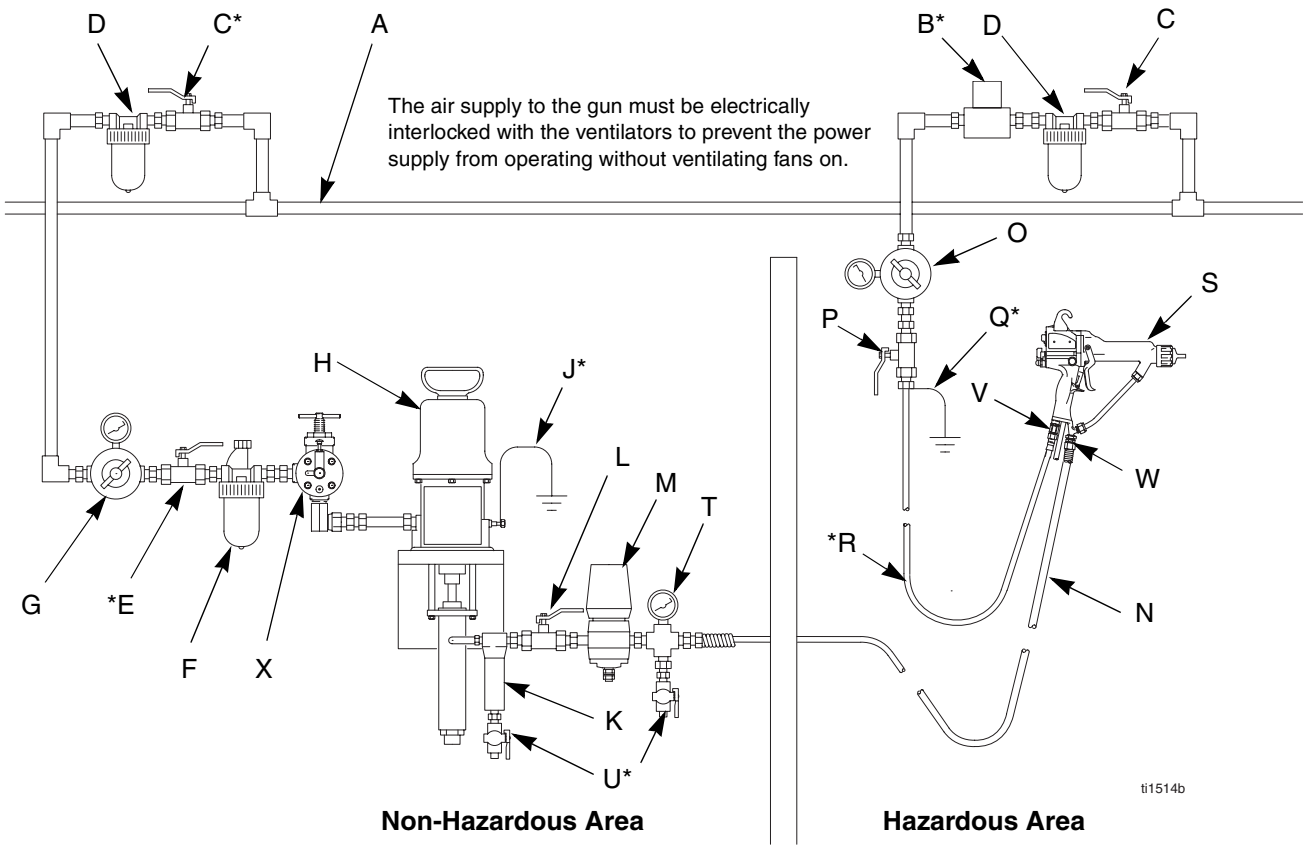


Fig. 2. Typical Installation

Key

- A Main Air Supply Line
- B* Ventilation Fan Interlock Solenoid Valve
- C* Main Air Supply Shutoff Valve (bleed-type)
- D Air Line Filter/Water Separator
- E* Pump Air Supply Shutoff Valve (bleed-type)
- F Air Line Lubricator
- G Air Pressure Regulator
- H Pump
- J* Pump Ground Wire
- K Fluid Filter
- L Fluid Supply Line Shutoff Valve
- M Fluid Pressure Regulator
- N Grounded Fluid Supply Line, with spring guards
- O Gun Air Regulator
- P Gun Air Supply Line Shutoff Valve
- Q* Air Hose Ground Wire
- R* Graco Grounded Air Hose
- S Electrostatic Air-Assisted Spray Gun
- T Fluid Pressure Gauge
- U* Fluid Drain Valve
- V Gun Air Inlet
- W Gun Fluid Inlet
- X Pump Runaway Valve
- * Required for safe operation. Must be purchased separately. **NOTE**: Solenoid valve (B) is not offered as a Graco accessory.

Connect the Air Line

⚠ WARNING

Electric Shock Hazard

To reduce the risk of electric shock or other serious injury, the air supply hose must be electrically connected to a true earth ground. **Use only Graco Grounded Air Supply Hose.**

1. Connect the Graco Grounded Air Supply Hose (R) between the air supply line and the gun's air inlet (V). The gun air inlet fitting has a left-hand thread. Connect the air supply hose ground wire (Q) to a true earth ground.

2. Install an air line filter/water separator (D) on the air line to ensure a dry, clean air supply to the gun. Dirt and moisture can ruin the appearance of your finished workpiece and can cause the gun to malfunction.

⚠ WARNING

Fluid Injection Hazard

To reduce the risk of serious injury due to component rupture, including fluid injection, pump pressure must be limited by the pump air regulator. Do not rely on the gun fluid regulator to limit the fluid pressure to the gun.

The fluid supply pump must be prevented from producing a fluid pressure greater than the 3000 psi (21 MPa, 210 bar) *Maximum Working Fluid Pressure* of the gun. For example, the air supply pressure to a 30:1 ratio pump must not exceed 100 psi (0.7 MPa, 7 bar).

3. Install a bleed-type air regulator (G, O) on the pump and gun air supply lines to control air pressure to the pump and gun.

⚠ WARNING

Fluid Injection Hazard

The bleed-type air valve (E) is required in your system to relieve air trapped between the valve and the pump after the air regulator is shut off. Trapped air can cause the pump to cycle unexpectedly, which can result in serious injury, including fluid injection and splashing fluid in the eyes or on the skin.

4. Install a bleed-type air valve (E) on the pump air line to shut off air to the pump. Install an additional bleed-type air valve (C) on the main air line (A) to isolate the accessories for servicing.

5. Install an air shutoff valve (P) on each gun air supply line to shut off air to the gun(s).

Connect the Exhaust Tube

Press the exhaust tube (38) onto the barbed adapter on the bottom of the gun handle. Secure the tube with the clamp (39).

Connect the Fluid Line

1. Before connecting the fluid line (N), blow it out with air and flush it with solvent. Use solvent which is compatible with the fluid to be sprayed.

2. Install a fluid regulator (M) on the fluid line to control fluid pressure to the gun.

⚠ WARNING

Fluid Injection Hazard

The fluid drain valve (U) is required in your system to assist in relieving fluid pressure in the displacement pump, hose and gun. Triggering the gun to relieve pressure may not be sufficient. Install a drain valve close to the pump's fluid outlet. The drain valve reduces the risk of serious injury, including fluid injection and splashing in the eyes or on the skin.

3. Install a drain valve (U) near the pump outlet.

4. Connect the fluid line to the 1/4 npsm gun fluid inlet (W).

5. Before running any paint through the spray gun, flush it out with a compatible solvent.

Filter the Fluid

Install a fluid filter (K) at the pump outlet to remove particles and sediment which could clog the spray tip.

The gun includes an inline fluid filter (1) for additional filtration.

Select a Spray Tip

⚠ WARNING

Fluid Injection Hazard

To reduce the risk of a fluid injection injury, always follow the **"Pressure Relief Procedure"**, page 25, before removing or installing the spray tip, air cap, or tip guard.

The fluid output and pattern width depend on the size of the spray tip, the fluid viscosity, and the fluid pressure. Use the **"Spray Tip Selection Chart"**, page 48, as a guide for selecting the appropriate spray tip for your application.

Refer to the gun operation manual to install the spray tip.

Grounding

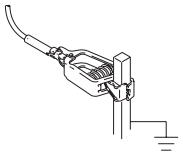
⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

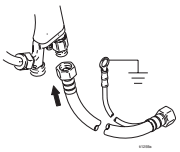
When operating the electrostatic gun, any ungrounded objects in the spray area (people, containers, tools, etc.) can become electrically charged. Improper grounding can result in static sparking, which can cause a fire, explosion, or electric shock. Follow the grounding instructions below.

The following are minimum grounding requirements for a basic electrostatic system. Your system may include other equipment or objects which must be grounded. Check your local electrical code for detailed grounding instructions. Your system must be connected to a true earth ground.

- *Pump:* ground the pump by connecting a ground wire and clamp as described in your separate pump instruction manual.



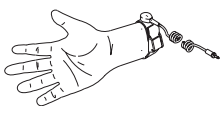
- *Electrostatic Air-Assisted Spray Gun:* ground the gun by connecting the Graco Grounded Air Hose and connecting the air hose ground wire to a true earth ground. See **"Check Electrical Grounding"**, page 14.



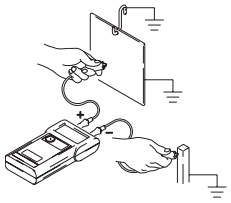
- *Air compressors:* ground the equipment according to the manufacturer's recommendations.

- *All air and fluid lines* must be properly grounded. Use only grounded hoses with a maximum of 100 feet (30.5 m) combined hose length to ensure grounding continuity.

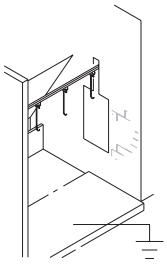
- *All persons entering the spray area:* shoes must have conductive soles, such as leather, or personal grounding straps must be worn. Do not wear shoes with non-conductive soles such as rubber or plastic. If gloves are worn, cut off fingers or cut out palm area, to ensure your hand contacts the grounded gun handle.



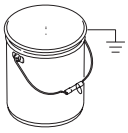
- *Object being sprayed:* keep the workpiece hangers clean and grounded at all times. Resistance must not exceed 1 megohm.



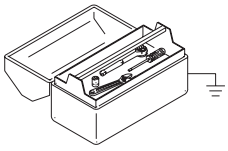
- *The floor of the spray area:* must be electrically conductive and grounded. Do not cover the floor with cardboard or any non-conductive material which would interrupt grounding continuity.



- *Flammable liquids in the spray area:* must be kept in approved, grounded containers. Do not use plastic containers. Do not store more than the quantity needed for one shift.



- *All electrically conductive objects or devices in the spray area:* including fluid containers and wash cans, must be properly grounded.



Check Electrical Grounding

⚠ WARNING

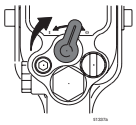
Fire, Explosion, and Electric Shock Hazard

Megohmmeter Part No. 241079 (AA-see Fig. 3) is not approved for use in a hazardous area. To reduce the risk of sparking, do not use the megohmmeter to check electrical grounding unless:

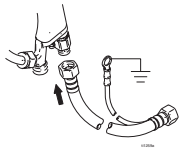
- The gun has been removed from the hazardous area;
- Or all spraying devices in the hazardous area are turned off, ventilation fans in the hazardous area are operating, and there are no flammable vapors in the area (such as open solvent containers or fumes from spraying).

Failure to follow this warning could cause fire, explosion, and electric shock and result in serious injury and property damage.

1. Have a qualified electrician check the electrical grounding continuity of the spray gun and air hose.
2. Turn the ES ON/OFF valve OFF.



3. Turn off the air and fluid supply to the gun. The fluid hose must not have any fluid in it.
4. Make sure the grounded air hose (R) is connected and the hose ground wire is connected to a true earth ground.



5. Measure the resistance between the gun handle (BB) and a true earth ground (CC). Use an applied voltage of 500 minimum to 1000 volts maximum. The resistance should not exceed 1 megohm. See Fig. 3.
6. If the resistance is greater than 1 megohm, check the tightness of the ground connections and be sure the air hose ground wire is connected to a true earth ground. If the resistance is still too high, replace the air hose.

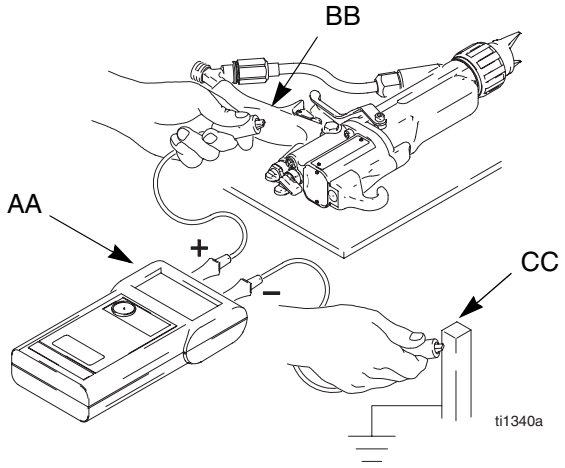


Fig. 3. Check Gun Grounding

Check Fluid Resistivity

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

Check the fluid resistivity in a non-hazardous area only. Resistance Meter 722886 and Probe 722860 are not approved for use in a hazardous area.

Failure to follow this warning could cause fire, explosion, electric shock and result in serious injury and property damage.

Graco Part No. 722886 Resistance Meter and 722860 Probe are available as accessories to check that the resistivity of the fluid being sprayed meets the requirements of an electrostatic air-assisted spray system.

Follow the instructions included with the meter and probe. Readings of 25 megohms-cm and above provide the best electrostatic results.

Check Fluid Viscosity

To check fluid viscosity you will need:

- a viscosity cup
- a stopwatch.

1. Completely submerge the viscosity cup in the fluid. Lift the cup out quickly, starting the stopwatch as soon as the cup is completely removed.
2. Watch the stream of fluid coming from the bottom of the cup. As soon as there is a break in the stream, shut off the stopwatch.
3. Record the fluid type, elapsed time, and size of the viscosity cup.
4. If the viscosity is too high or too low, contact the material supplier and adjust as necessary.

Operation

INSTRUCTIONS

Refer to the gun operation manual (supplied) for Setup, Shutdown, and Daily Care procedures.

Low Voltage Adjustment (Smart Guns Only)

The ES HI/LO switch enables you to switch between full voltage and a lower voltage output. The lower voltage is factory set, but can be adjusted.

1. Set the ES HI/LO switch to LO.

2. Remove the LOW VOLTAGE adjustment plug (53). Set the desired voltage, using a small screwdriver to slide switches 1 and 2 ON or OFF, according to Table 1 . Also see Fig. 4.

Table 1: Low Voltage Adjustment

	1	2	kV
Factory Setting →	ON	ON	70
	ON	OFF	60
	OFF	ON	50
	OFF	OFF	40

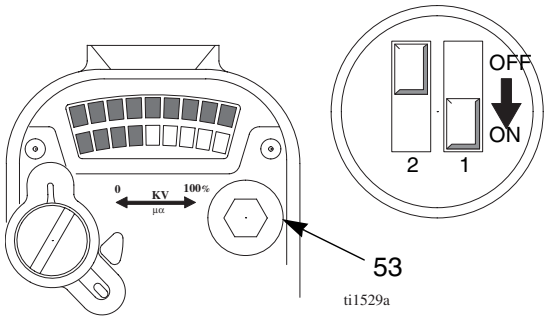


Fig. 4. Low Voltage Adjustment Switches

Maintenance

Refer to the gun operation manual (supplied) for Daily Care and Cleaning procedures.

Flush the Spray Gun

Flush the gun before changing colors, at the end of the day, before storing, and before repairing the gun.

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

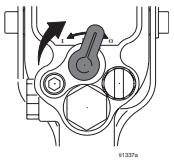
To reduce the risk of fire, explosion, or electric shock, turn the ES ON/OFF valve OFF before flushing the gun.

⚠ CAUTION

Flush the gun with a non-conductive, compatible solvent. Conductive solvents can cause the gun to malfunction.

Do not use methylene chloride as a flushing or cleaning solvent with this gun as it will damage nylon components.

1. Turn the ES ON/OFF valve OFF.

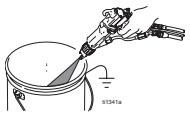


⚠ WARNING

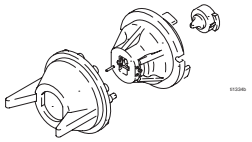
Fluid Injection Hazard

To reduce the risk of a fluid injection injury, always follow the **"Pressure Relief Procedure"**, page 25, whenever you are instructed to relieve the pressure.

2. Relieve the pressure.

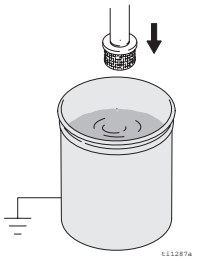


3. Remove and clean the air cap and the spray tip.

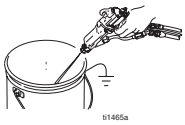


Continued on page 18.

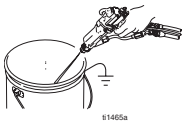
4. Change the fluid source to solvent, or disconnect the fluid line and connect a solvent supply line to the gun.



5. Point the gun into a grounded metal pail. Flush until clean solvent flows from the gun.

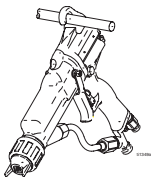


6. Relieve the pressure. Lock the trigger.



7. Shut off or disconnect the solvent line.

8. Hang the gun from its hook, with the nozzle pointing down.



9. When ready to spray again, reconnect the fluid supply line. Follow the Setup procedure in the Gun Operation Manual.

Electrical Tests

Electrical components inside the gun affect performance and safety. The following procedures test the condition of the power supply (18) and barrel (16), and electrical continuity between components.

⚠ CAUTION

The barrel resistor cartridge is part of the barrel and is not replaceable. To avoid destroying the gun barrel, do not attempt to remove the barrel resistor.

Use megohmmeter Part No. 241079 (AA) with an applied voltage of 500 V. Connect the leads as shown.

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

Megohmmeter Part No. 241079 (AA-see Fig. 5) is not approved for use in a hazardous area. To reduce the risk of sparking, do not use the megohmmeter to check electrical grounding unless:

- The gun has been removed from the hazardous area;
- Or all spraying devices in the hazardous area are turned off, ventilation fans in the hazardous area are operating, and there are no flammable vapors in the area (such as open solvent containers or fumes from spraying).

Failure to follow this warning could cause fire, explosion, and electric shock and result in serious injury and property damage.

Test Gun Resistance

1. Flush and dry the fluid passage.
2. Measure resistance between the electrode needle tip (9b) and the air swivel (35); it should be 156-180 megohms. See Fig. 5. If outside this range, go to the next test. If in range, refer to **"Electrical Troubleshooting"**on page 24 for other possible causes of poor performance.

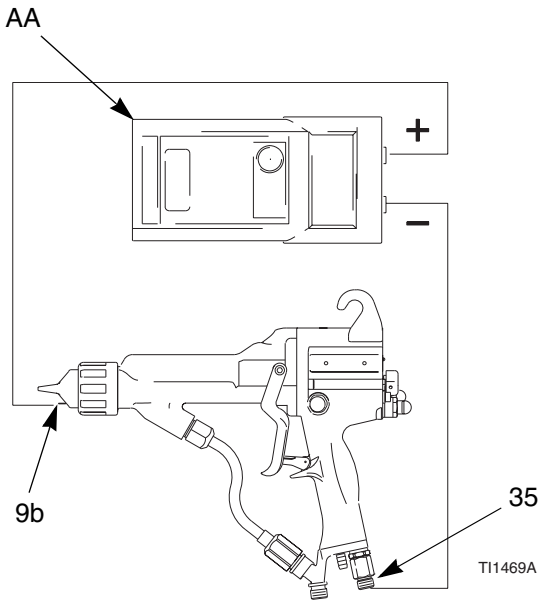


Fig. 5. Test Gun Resistance

Test Power Supply Resistance

1. Remove the power supply (18), page 33.
2. Remove the turbine alternator (19) from the power supply, page 34.
3. Measure resistance from the power supply's ground strips (EE) to the spring (18b). See Fig. 6.
4. The resistance should be 135-150 megohms. If outside this range, replace the power supply. If in range, proceed to the next test.
5. If you still have problems, refer to **"Electrical Troubleshooting"** on page 24 for other possible causes of poor performance, or contact your Graco distributor.
6. Be sure the spring (18b) is in place before reinstalling the power supply.

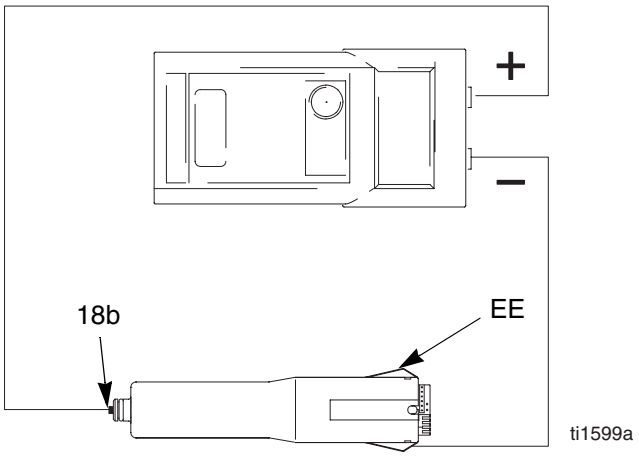


Fig. 6. Test Power Supply Resistance

Test Barrel Resistance

1. Insert a conductive rod (B) into the gun barrel (removed for the power supply test) and against the metal contact (C) in the front of the barrel.

2. Measure the resistance between the conductive rod (B) and the barrel contact ring (16a). See Fig. 7. The resistance should be 19-29 megohms. If the resistance is incorrect, make sure the metal contact (C) in the barrel and the barrel contact ring (16a) are clean and undamaged.

3. If the resistance is still outside the range, remove the barrel contact ring (16a) and measure the resistance between the conductive rod (B) and the wire lead at the bottom of the contact ring groove.

4. If the resistance is in range, replace the contact ring (16a) with a new one. Press the contact ring firmly into the groove on the front of the barrel.

5. If the resistance is still outside the range, replace the barrel.

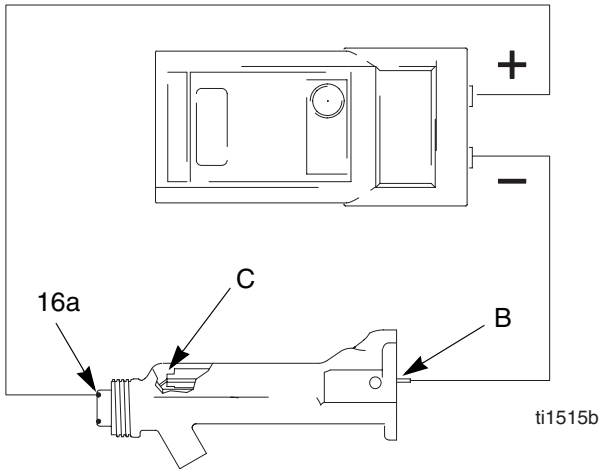


Fig. 7. Test Barrel Resistance

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

The barrel contact ring (16a) is a conductive contact ring, not a sealing o-ring. To reduce the risk of sparking or electric shock, do not remove the barrel contact ring (16a) except to replace it and never operate the gun without the contact ring in place. Do not replace the contact ring with anything but a genuine Graco part.

Troubleshooting

⚠ WARNING

Electric Shock Hazard

Installing and servicing this equipment requires access to parts which may cause an electric shock or other serious injury if the work is not performed properly. Do not install or service this equipment unless you are trained and qualified.

⚠ WARNING

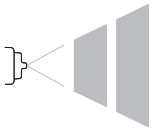
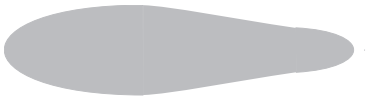
Fluid Injection Hazard

To reduce the risk of a fluid injection injury, always follow the **"Pressure Relief Procedure"** on page 25 whenever you are instructed to relieve the pressure.

NOTE: Check all possible remedies in the Troubleshooting Chart before disassembling the gun.

Spray Pattern Troubleshooting

NOTE: Some spray pattern problems are caused by the improper balance between air and fluid.

Problem	Cause	Solution
Fluttering or spitting spray. 	No fluid.	Refill supply.
	Air in fluid supply.	Check fluid source. Refill.
Irregular pattern. 	Fluid buildup; partially plugged tip.	Clean. See gun operation manual.
	Worn/damaged tip or air cap holes.	Clean or replace.
Pattern pushed to one side; air cap gets dirty.	Air cap holes plugged.	Clean. See gun operation manual.
Tails in pattern.	Air pressure too low.	Open atomizing air adjustment valve.
	Fluid pressure too low.	Increase.
Fluid buildup on air cap/tip guard.	Air pressure too high.	Decrease.
	Fluid pressure too low.	Increase.

Gun Operation Troubleshooting

Problem	Cause	Solution
Excessive spray fog.	Atomizing air pressure too high.	Close atomizing air valve some, or decrease air pressure as low as possible; minimum 40 psi (0.28 MPa, 2.8 bar) needed at gun for full voltage.
	Fluid too thin.	Increase viscosity.
“Orange Peel” finish.	Atomizing air pressure too low.	Open atomizing air valve more or increase gun air inlet pressure; use lowest air pressure necessary.
	Spray tip is too large.	Use smaller tip. See page 48.
	Poorly mixed or filtered fluid.	Remix or refilter fluid.
	Fluid too thick.	Reduce viscosity.
Fluid leaks from the fluid packing area	Worn fluid needle packings or shaft.	Replace fluid needle assembly (26); see page 31.
Air leaks from the front of the gun	Air valve (21) is not seating properly.	Clean and service air valve; see page 36.
Fluid leakage from the front of the gun	Worn or damaged fluid needle ball.	Replace fluid needle (26); see page 31.
	Worn fluid seat housing (2).	Replace seat housing; see page 27.
	Loose spray tip (3).	Tighten retaining ring (27); see page 27.
	Damaged tip seal (3a).	Replace; see page 27.
Gun does not spray	Low fluid supply.	Add fluid if necessary.
	Damaged spray tip (3).	Replace; see page 27.
	Dirty or clogged spray tip (3).	Clean; see gun operation manual.
	Damaged fluid needle (26).	Replace; see page 31.
Dirty air cap	Damaged or plugged air cap (9).	Clean air cap; see gun operation manual.

Electrical Troubleshooting

Problem	Cause	Solution
Poor wrap.	ES ON/OFF valve OFF (0).*	Turn ON (I).
	Gun air pressure too low.	Check air pressure to gun; minimum 40 psi (0.28 MPa, 2.8 bar) needed at gun for full voltage.
	Atomizing air pressure too high.	Decrease.
	Fluid velocity too high.	Decrease fluid pressure or replace worn tip.
	Incorrect distance from gun to part.	Should be 8-12 in. (200-300 mm).
	Poorly grounded parts.	Resistance must be 1 megohm or less. Clean workpiece hangers.
	Faulty gun resistance.	See “Test Gun Resistance” on page 19.
	Low fluid resistivity.	Check fluid resistivity. See page 15.
	Fluid leaks from the fluid needle (26) packings and causes a short.	Clean the needle cavity. Replace the fluid needle. See page 31.
	Faulty turbine alternator (19).	Be sure the plug is in place on the back of the turbine alternator housing. Remove and test the turbine alternator. See page 34.
	The KV HI-LO lever is on LO.	Check the lever position; replace if needed.
ES indicator or voltage/current display is not lit.	ES ON/OFF valve OFF (0).*	Turn ON (I).
	No power.	Repair/replace alternator turbine; replace power supply. See page 33.
Voltage/current display stays red (smart guns only).	Gun too close to part.	Should be 8-12 in. (200-300 mm).
	Check fluid resistivity.	See “Check Fluid Resistivity” on page 15.
	Dirty gun.	Clean. See Operation Manual.
Operator gets mild shock.	Operator not grounded or is near ungrounded object.	See “Grounding” on page 13.
	Gun not grounded.	See “Check Electrical Grounding” on page 14 and “Test Gun Resistance” on page 19.
Operator gets shock from workpiece.	Workpiece not grounded.	Resistance must be 1 megohm or less. Clean workpiece hangers.

* ES indicator light is off when the gun is triggered.

Repair

Pressure Relief Procedure

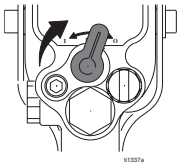
⚠ WARNING

Fluid Injection Hazard

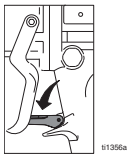
The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause serious injury. To reduce the risk of an injury from injection, splashing fluid, or electric shock, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure
- stop spraying
- check or repair any of the system equipment
- or install or clean the spray tip.

1. Turn the ES ON/OFF valve OFF.

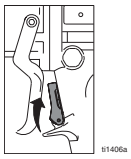


2. Lock the trigger.

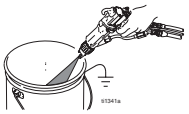


3. Turn off the air bleed valves to the fluid source and to the gun.

4. Unlock the trigger.

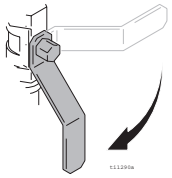


5. Trigger the gun into a grounded metal waste container to relieve the fluid pressure.

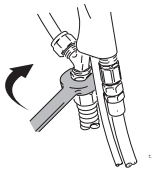


6. Lock the trigger.

7. Open the pump drain valve and all other fluid drain valves in the system, having a waste container ready to catch the drainage. Leave the drain valve(s) open until you are ready to spray again.



8. If the nozzle or hose is completely clogged or pressure is not fully relieved, slowly loosen the hose end coupling. Now clear the nozzle or hose.



Prepare the Gun for Service

⚠ WARNING

Electric Shock Hazard

Installing and repairing this equipment requires access to parts that may cause electric shock or other serious injury if the work is not performed properly. Do not install or service this equipment unless you are trained and qualified.

⚠ WARNING

Fluid Injection Hazard

To reduce the risk of injury, follow the **"Pressure Relief Procedure"** on page 25 before checking or repairing any part of the system and whenever you are instructed to relieve the pressure.

NOTE:

- Check all possible remedies in **"Troubleshooting"** before disassembling the gun.
- Use a vise with padded jaws to prevent damage to plastic parts.
- Lubricate the power supply o-ring (18a) and the plastic end of the fluid tube (14) with dielectric grease (40).
- Lightly lubricate o-rings and seals with non-silicone grease. Order Part No. 111265 Lubricant. Do not over-lubricate.
- Only use genuine Graco parts. Do not mix or use parts from other PRO Gun models. Note that the air cap, spray tip, and tip guard for this gun are orange.
- Air Seal Repair Kit 244781 is available. The kit must be purchased separately. Kit parts are marked with an asterisk, for example (6*).

⚠ WARNING

Some PRO Xs4 AA Gun replacement parts look similar to other PRO Gun parts but are not interchangeable! **When repairing, do not mix or use other PRO Gun parts that may look similar, but have different part numbers!** Use of parts other than those specified in the PRO Xs4 AA Gun parts lists could alter the grounding continuity of the gun, cause parts to leak or rupture, or cause the gun to malfunction and result in serious injury, fire, explosion, or property damage.

1. Flush the gun, page 17.
2. Relieve the pressure, page 25.
3. Disconnect the gun air and fluid lines.
4. Remove the gun from the worksite. Repair area must be clean.

Tools Needed

- 2 mm driver (supplied)
- 4 mm driver (supplied)
- 9 mm driver (supplied)
- adjustable wrench
- medium screwdriver
- snap ring pliers
- needle-nose pliers

Tip Guard, Air Cap, Spray Tip, or Seat Housing Replacement

1. Prepare gun for service, page 26.

2. Remove the retaining ring (27), tip guard (4), air cap (9a), and spray tip (3). You may have to turn the air cap with the tip guard to remove it. See Fig. 8.

3. Replace the tip gasket (3a) if damaged.

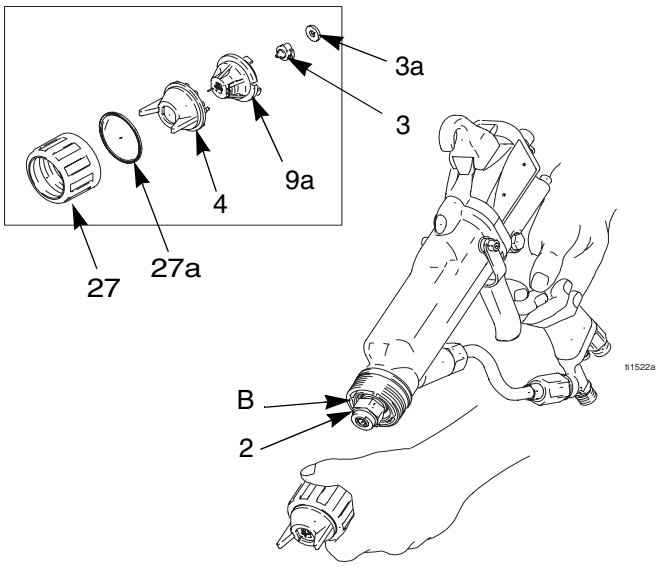


Fig. 8. Tip Guard, Air Cap, and Spray Tip Replacement

4. Trigger the gun and remove the seat housing (2) with the tool (37) provided. See Fig. 9.

⚠ CAUTION

The barrel resistor cartridge (B) is part of the barrel and is not replaceable. To avoid destroying the gun barrel, do not attempt to remove the barrel resistor.

⚠ WARNING

Fire, Explosion, and Electric Shock Hazard

The barrel contact ring (16a) is a conductive contact ring, not a sealing o-ring. To reduce the risk of sparking or electric shock, do not remove the barrel contact ring (16a) except to replace it and never operate the gun without the contact ring in place. Do not replace the contact ring with anything but a genuine Graco part.

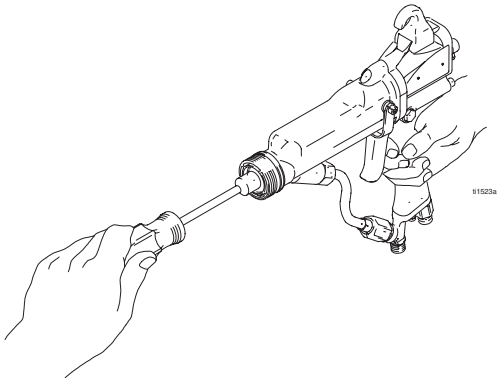


Fig. 9. Seat Housing Replacement

Continued on page 28.

⚠ CAUTION

To avoid damaging the seat housing and gun barrel, never over-tighten the seat housing. Over-tightening may result in improper fluid shut-off.

5. Trigger the gun and install the gray-colored seat housing (2). Tighten until snug, then 1/4 turn more.

⚠ CAUTION

To avoid damaging the tip guard (4), orientate the air cap (9a) before tightening the retaining ring (27). Do not turn the cap when the retaining ring is tight.

6. Assemble the spray tip (3), air cap (9a), and tip guard (4). Make sure the electrode (9b) is not damaged or missing. Install the air cap assembly with the retaining ring (27). The u-cup (27a) lips must face forward.

7. Test gun resistance, page 19.

Electrode Replacement

⚠ WARNING

Electric Shock Hazard

To reduce the risk of fire, explosion, or electric shock, do not operate the spray gun without the electrode installed in the air cap.

1. Prepare the gun for service, page 26.
2. Remove the air cap assembly, page 27.
3. Pull the electrode (9b) out of the back of the air cap, using a needle-nose pliers.
4. Push the new electrode through the air cap hole. Make sure the short end (BB) of the electrode engages the hole (CC) in the back of the air cap. Press the electrode in place firmly with your fingers. See Fig. 10.
5. Install the air cap assembly, page 27.
6. Test gun resistance, page 19.

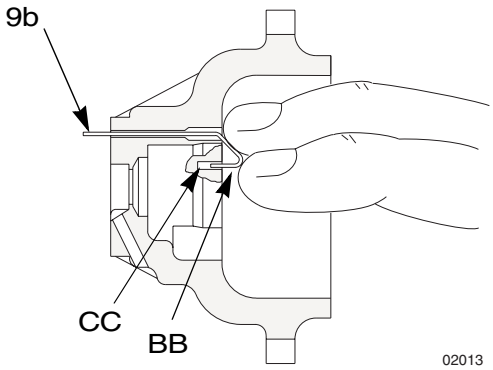


Fig. 10. Electrode Replacement

Fluid Tube Replacement

1. Prepare the gun for service, page 26.
2. Disconnect the bottom fluid tube nut (C). See Fig. 11.
3. Carefully unscrew the top fluid tube nut (D).

⚠ CAUTION

Be careful not to damage the fluid tube assembly (14) when cleaning or installing it, especially the sealing surface (E). If the sealing surface is damaged, the entire fluid tube assembly must be replaced.

4. Apply dielectric grease (40) to the entire length of the plastic extension on the end of the fluid tube (14).
5. Apply low strength thread sealant to the fluid tube nut threads.
6. Install the fluid tube into the gun barrel and tighten the top nut (D) hand-tight, then 1/4 to 1/2 turn with a wrench. There will be a gap between the nut and barrel. Do not overtighten the nut.
7. Make sure the fluid filter (1) is in place in the fluid fitting. Tighten the bottom nut (C) onto the fitting and torque to 20-30 in-lb (2.3-3.4 N•m). Make sure the top nut remains tight.

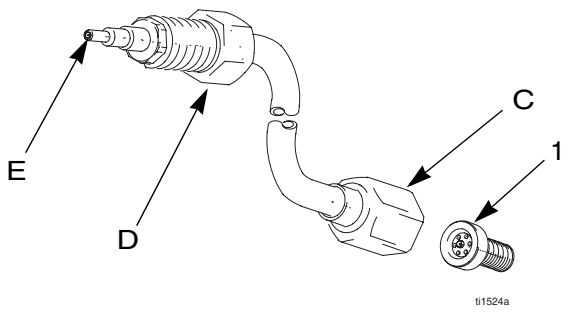


Fig. 11. Fluid Tube Replacement

Fluid Filter Removal

1. Prepare the gun for service, page 26.
2. Disconnect the bottom fluid tube nut (C).
3. Remove the fluid filter (1) from the fluid fitting. Clean or replace the filter, as needed. See Fig. 12.

NOTE: Replacement filters are available in 100 mesh (standard) or 60 mesh sizes. See page 47.

4. Install the fluid filter in the fluid fitting. Tighten the bottom nut (C) onto the fitting and torque to 20-30 in-lb (2.3-3.4 N•m). Make sure the top nut remains tight.

⚠ CAUTION

Be sure the fluid tube (14) is not twisted after tightening the bottom nut (C).

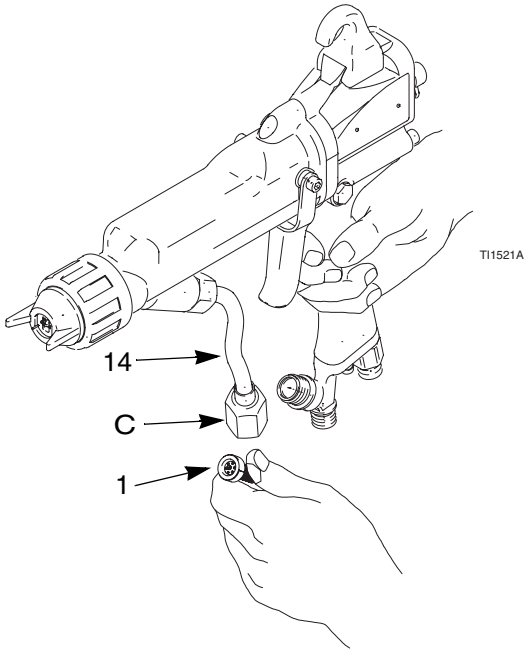


Fig. 12. Fluid Filter Removal

Fluid Needle Replacement

1. Prepare the gun for service, page 26.
2. Remove the air cap assembly and seat housing, page 27.
3. Remove the barrel (16), page 32.
4. Remove the trigger screws (8) and trigger (30).
5. Remove the spring cap (45) and the spring (26a) from the barrel. See Fig. 13.
6. Place the 2 mm driver (44) in the back of the fluid needle assembly. Push the tool in and turn it counterclockwise about 12 full turns to unthread the needle.
7. Insert the tool in the front of the gun and push the fluid needle assembly out the back of the barrel.

⚠ CAUTION

To avoid damaging the needle assembly, be sure the needle is completely unthreaded before pushing it out of the barrel.

8. Install the fluid needle assembly in the gun barrel. Push in on the needle with the tool (44) and tighten. See Fig. 14.
9. Install the spring (26a).
10. Install the spring cap (45), making sure the grounding spring (55) is in place.
11. Install the trigger (30) and screws (8).
12. Install the barrel (16), page 32.

⚠ CAUTION

To avoid damaging the seat housing and gun barrel, never overtighten the seat housing. Overtightening may result in improper fluid shutoff.

13. Install the seat housing and air cap, page 27.
14. Test gun resistance, page 19.

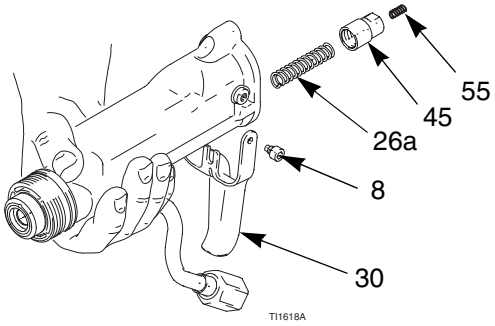


Fig. 13. Spring Cap and Springs

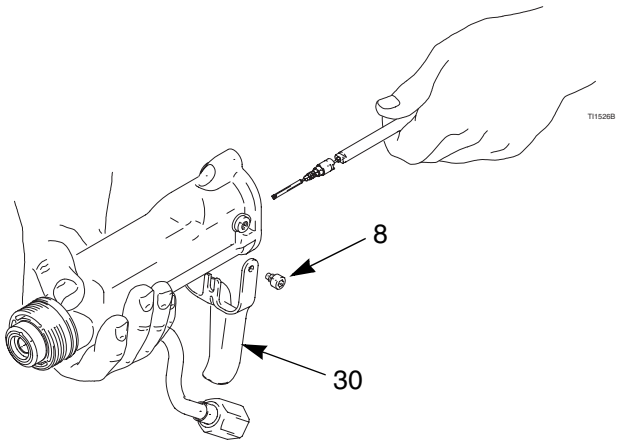


Fig. 14. Fluid Needle Replacement

Barrel Removal

1. Prepare the gun for service, page 26.
2. Carefully loosen the nut (C) from the bracket fluid fitting (13). See Fig. 15.
3. Loosen the three screws (11).

⚠ CAUTION

To avoid damaging the power supply (18), pull the gun barrel straight away from the gun handle. If necessary, gently move the gun barrel from side to side to free it from the gun handle.

4. Hold the gun handle (17) with one hand and pull the barrel (16) straight off the handle.

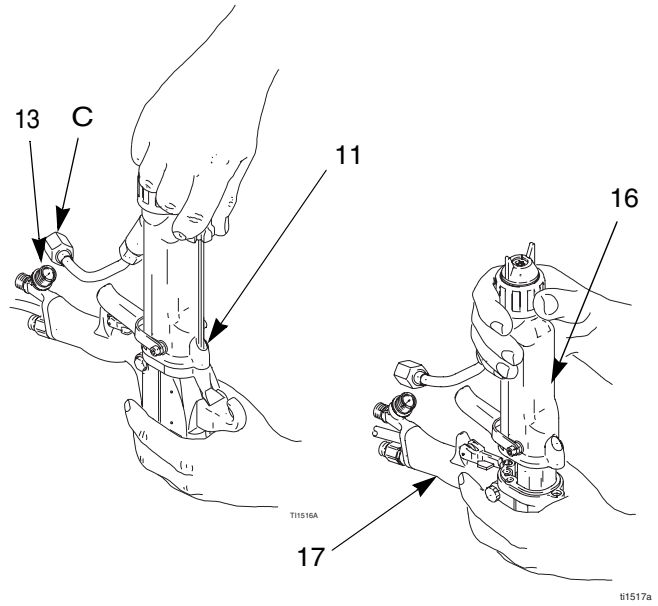


Fig. 15. Barrel Removal

Barrel Installation

1. Be sure the gasket (10*, Fig. 16) and grounding spring (55, Fig. 13) are in place and the gasket air holes are aligned properly. Replace if damaged.
2. Place the barrel (16) over the power supply (18) and onto the gun handle (17).
3. Tighten the three screws (11) oppositely and evenly (about a half turn past snug).

⚠ CAUTION

Do not over-tighten the screws (11).

4. Make sure the fluid filter (1) is in place in the fluid fitting. Tighten the bottom fluid tube nut (C) onto the bracket (13) fluid fitting and torque to 20-30 in-lb (2.3-3.4 N•m). Make sure the top nut remains tight.

⚠ CAUTION

Be sure the fluid tube (14) is not twisted after tightening the bottom nut (C).

5. Test gun resistance, page 19.

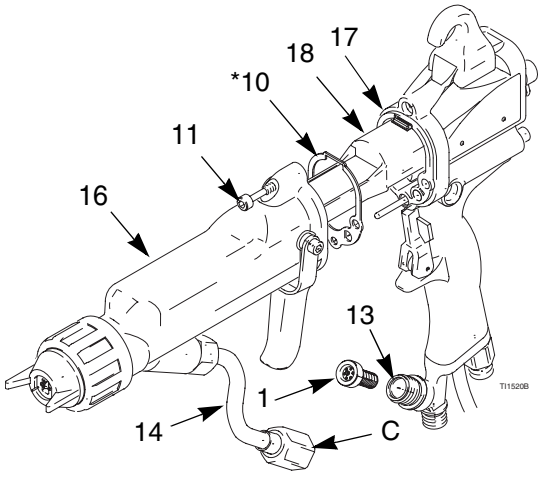


Fig. 16. Barrel Installation

Power Supply Removal and Replacement

NOTE:

- Inspect the gun handle power supply cavity for dirt or moisture. Clean with a clean, dry rag.
- Do not expose gasket (10) to solvents.

1. Prepare gun for service, page 26.
2. Remove the barrel (16), page 32.

⚠ CAUTION

Be careful when handling the power supply (18) to avoid damaging it.

3. Grasp the power supply (18) with your hand. With a gentle side to side motion, free the power supply/alternator assembly from the gun handle (17), then carefully pull it straight out. *On Smart Models only,* disconnect the flexible circuit (59) from the socket at the top of the handle (17). See Fig. 17.
4. Disconnect the 3-wire connector (B) from the power supply. Slide the alternator up and off the power supply. Inspect the power supply and alternator for damage. *On Smart Models only,* disconnect the 6-pin flexible circuit (59) from the power supply.
5. Check the power supply resistance, page 20. Replace if necessary.

NOTE: Before installing the power supply, make sure the o-rings (18a*, 19a*), spring (18b), and pads (19e) are in place.

6. *On Smart Models only,* connect the 6-pin flexible circuit (59) to the power supply.
7. Connect the 3-wire connector (B). Slide the alternator (19) down onto the power supply (18).
8. Lubricate the alternator o-ring (19a*) with non-silicone grease, Part No. 111265. Do not over-lubricate.
9. Lubricate the power supply o-ring (18a*) with dielectric grease (40).
10. Insert the power supply/alternator assembly in the gun handle (17). Make sure the ground strips make contact with the handle. *On Smart Models only,* connect the flexible circuit (59) to the socket at the top of the handle. Push the 6-pin connector into the socket to ensure it is properly connected.
11. Install the barrel (16), page 32.
12. Test gun resistance, page 19.

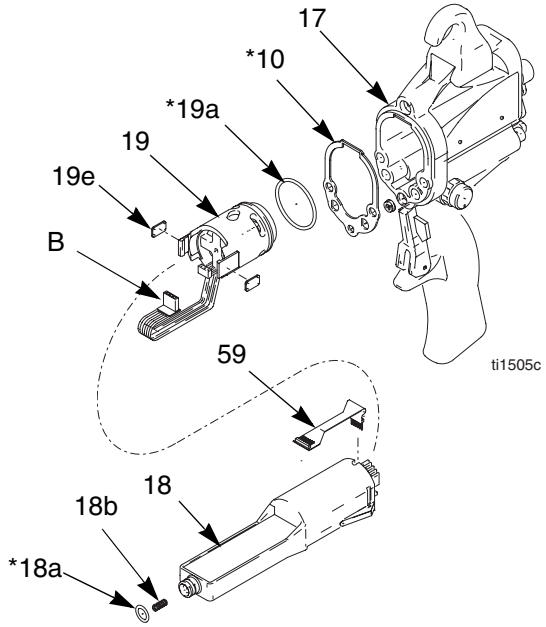


Fig. 17. Power Supply and Turbine Alternator

Turbine Alternator Removal and Replacement

NOTE: Replace turbine bearings after 2000 hours of operation. Order Part No. 223688 Bearing Kit.

1. Prepare gun for service, page 26.
2. Remove the power supply/alternator assembly, page 33.
3. Disconnect the alternator from the power supply, page 33.
4. Measure resistance between the two outer terminals of the 3-wire connector (B); it should be 2.5-3.5 ohms. If outside this range, replace the alternator coil.
5. Follow the bearing replacement procedure in the bearing kit manual 308034.
6. Install the alternator on the power supply, page 33.
7. Install the power supply/alternator assembly, page 33.

Atomizing Air Adjustment Valve Repair

1. Prepare the gun for service, page 26.

2. Place a wrench on the flats of the valve assembly (20) and unscrew it from the handle (17).

NOTE: You may replace the valve as an assembly (go to step 9) or as individual parts (steps 3-9).

3. Remove the retaining ring (20a). See Fig. 18.

4. Turn the valve stem (20d) counterclockwise until it comes free from the valve housing (20c).

5. Remove the o-ring (20b).

6. Clean all parts and inspect for wear or damage.

NOTE: Use non-silicone grease, Part No. 111265. Do not over-lubricate.

7. When reassembling the atomizing air valve (20), lightly lubricate the valve threads and screw the stem (20d) fully into the housing (20c) until bottomed. Install the o-ring (20b*), lubricate, and unscrew the valve stem until the o-ring enters the housing.

8. Reassemble the retaining ring (20a). Unscrew the valve stem from the housing until it is stopped by the retaining ring.

9. Screw the valve assembly (20) into the gun handle, using a wrench on the flats of the housing. Torque to 15-25 in-lb (1.7-2.8 N•m).

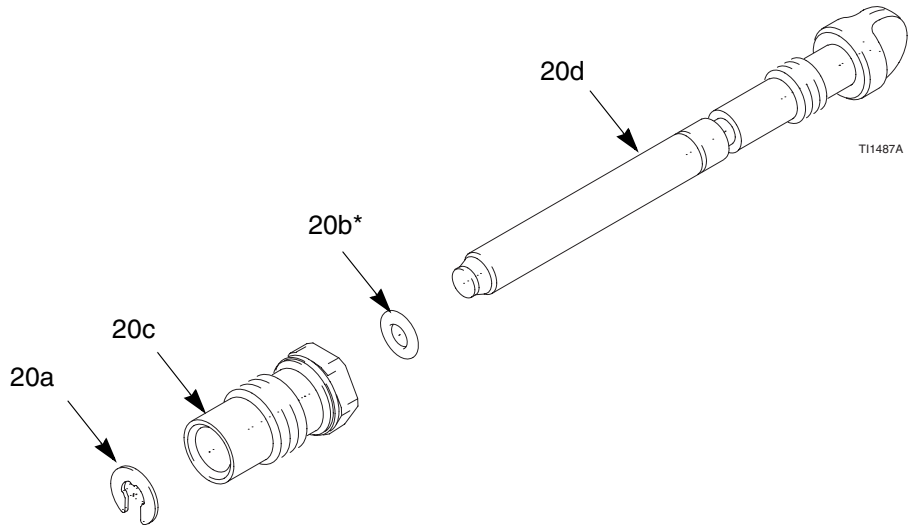


Fig. 18. Atomizing Air Adjustment Valve

Air Valve Repair

1. Prepare the gun for service, page 26.

2. Remove the barrel, page 32.

3. Remove the air valve cap (25) from the handle (17). Remove the spring (15). See Fig. 19.

⚠ CAUTION

Clean all parts in non-conductive solvent compatible with the fluid being used, such as xylol or mineral spirits. Use of conductive solvents can cause the gun to malfunction.

4. Remove the air valve (21) with a pliers. Inspect the seal (21a) and replace if damaged. Be sure the seal is pressed securely onto the valve so the outer cone is flat.

⚠ CAUTION

When removing the air valve (21) be careful not to damage the seat area.

5. Inspect the u-cup (6*). Do not remove the u-cup unless damaged. If removed, install the new one with its lips facing into the gun handle (17).

6. Install the air valve (21) and spring (15) into the gun handle (17).

7. Install the air valve cap (25). Torque to 15-25 in-lb (1.7-2.8 N•m).

8. Install the barrel, page 32.

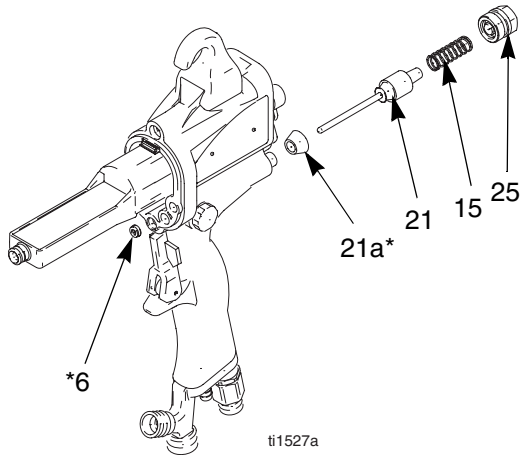


Fig. 19. Air Valve

ES ON/OFF Valve Repair

1. Prepare the gun for service, page 26.

2. Loosen the screw (48). Remove the valve.

3. Lubricate the o-rings (22a* and 22b*) with non-silicone grease, Part No. 111265. Do not over-lubricate.

> **⚠ CAUTION**
>
> Do not over-lubricate parts. Excessive lubricant on the o-rings can be pushed into the gun air passage and blemish the finish on the workpiece.

4. Clean and inspect parts for damage. Replace if necessary.

NOTE: The protrusion on the retainer plate (22d) must point upward.

5. Reinstall the valve. Torque the screw (48) to 15-25 in-lb (1.7-2.8 N•m).

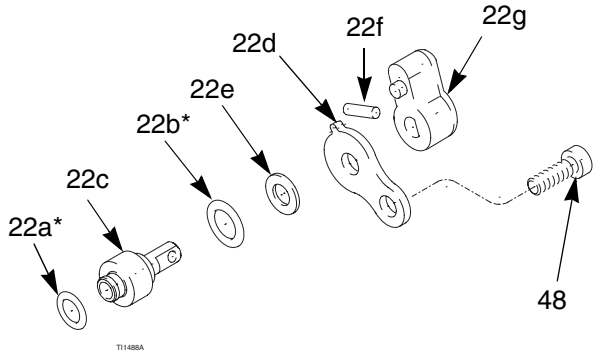
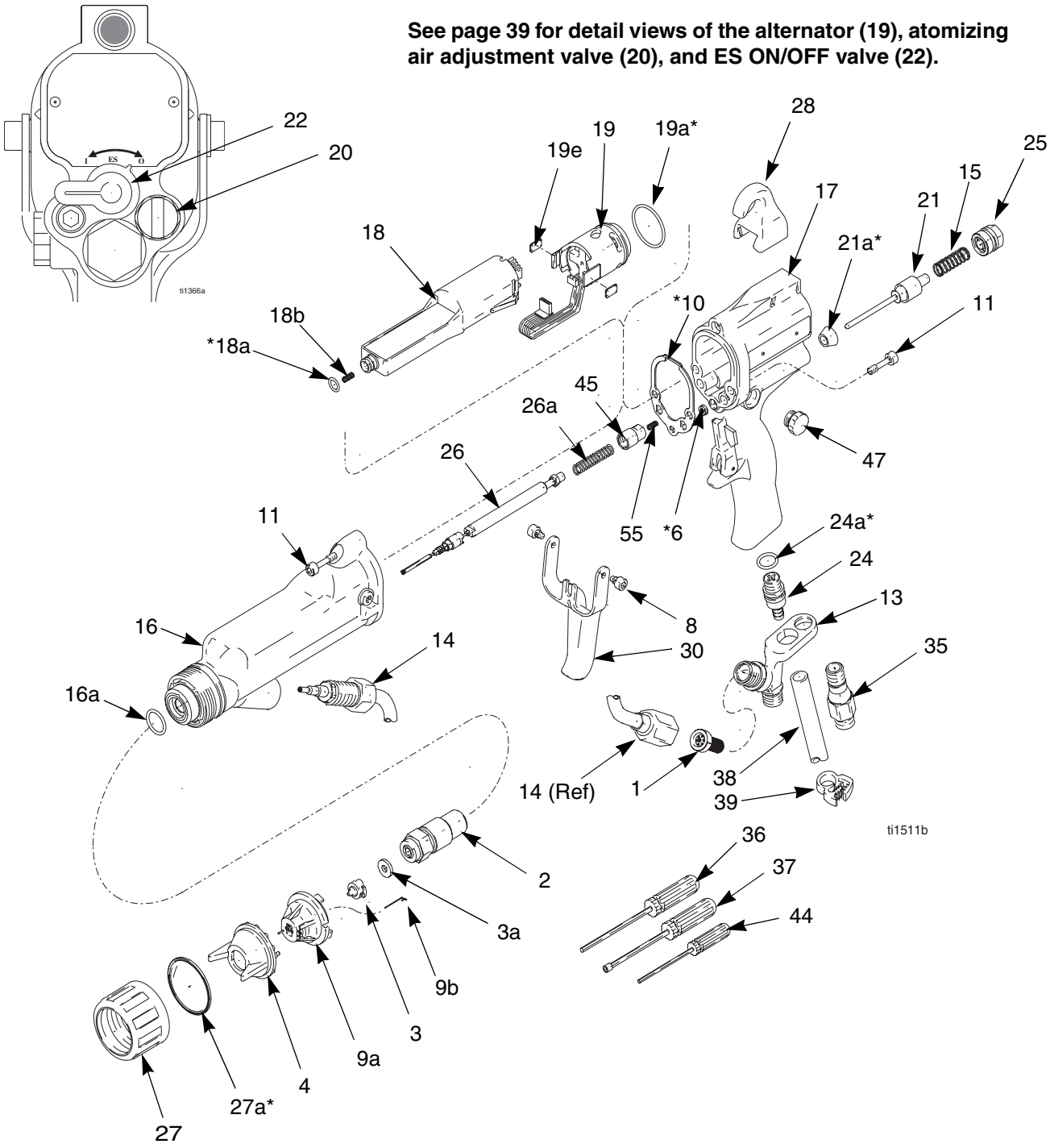


Fig. 20. ES ON/OFF Valve

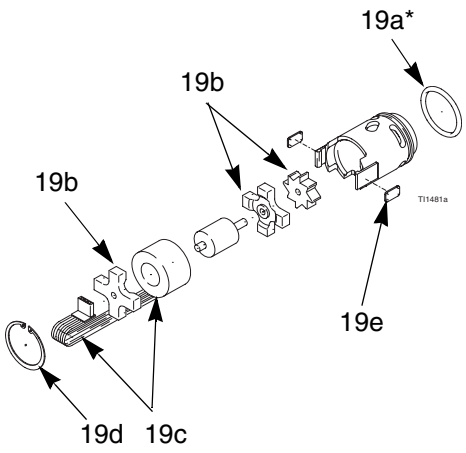
Parts

Part No. 244572 85 kV Electrostatic Gun, Series A (items 1-50)

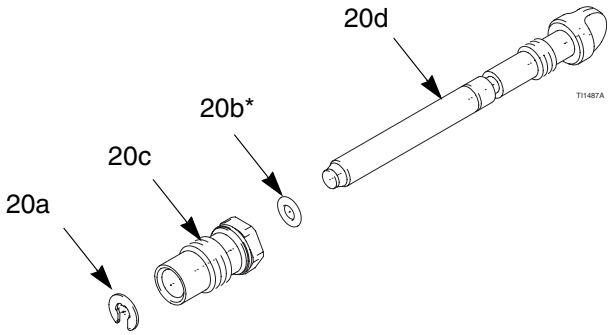
See page 39 for detail views of the alternator (19), atomizing air adjustment valve (20), and ES ON/OFF valve (22).



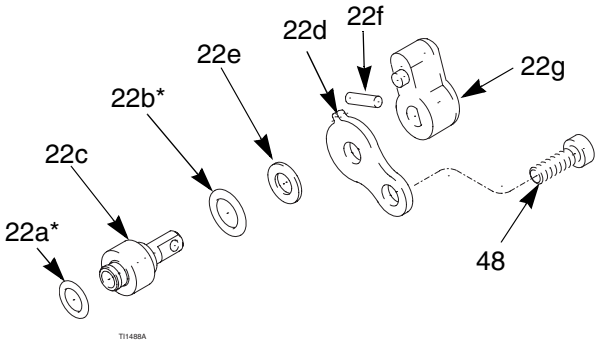
Ref. No. 19: Alternator



Ref. No. 20: Atomizing Air Adjustment Valve



Ref. No. 22: ES ON/OFF Valve



Part No. 244572 85 kV Electrostatic Gun, Series A (items 1-50)

Ref. No.	Part No.	Description	Qty
1	205264	FILTER, fluid, inline	1
2	245280	HOUSING, seat	1
3	GG3XXX	SPRAY TIP (customer's choice); includes item 3a	1
3a	183459	. SEAL, spray tip	1
4	276767	TIP GUARD	1
6*	188749	PACKING, u-cup, air valve; UHMWPE	1
8	197369	SCREW, trigger	2
9	245276	AIR CAP ASSEMBLY	1
9a	198679	. AIR CAP	1
9b	244917	. ELECTRODE (kit of 5)	1
10*	197517	GASKET, barrel	1
11	197518	SCREW; socket-hd; 10-24 x 3/4 in. (19 mm)	3
13	197832	BRACKET, inlet, fluid	1
14	244713	TUBE, fluid	1
15	185116	SPRING, compression	1
16	244531	BARREL, gun; includes item 16a	1
16a	197486	. O-RING; conductive	1
17	245286	HANDLE, gun	1
18	244541	POWER SUPPLY, 85 kV; includes items 18a-18b	1
18a*	103337	. O-RING; Viton®	1
18b	197624	. SPRING, compression	1
19	244555	TURBINE, alternator; includes items 19a-19e	1
19a*	110073	. O-RING; Viton®	1
19b	223688	. BEARING KIT; includes front and rear bearings and fan	1
19c	244577	. COIL	1
19d	111745	. RING, retaining	1
19e	198821	. PAD, pressure	2
20	244556	VALVE, adjustment, atomizing air; includes items 20a-20d	1
20a	101021	. RING, retaining	1
20b*	106560	. O-RING; fluorocarbon	1
20c	197566	. HOUSING, valve	1
20d	197567	. STEM, valve	1
21	244557	VALVE, air; includes item 21a	1
21a*	276733	. SEAL; fluoroelastomer	1
22	244558	VALVE, electrostatics, ON/OFF; includes items 22a-22g	1
22a*	111516	. O-RING; CV75	1
22b*	113137	. O-RING; fluoroelastomer	1
22c	198403	. SHAFT, valve	1
22d	198404	. PLATE, retaining	1
22e	198453	. WASHER	1
22f	198464	. PIN	1
22g	276753	. KNOB	1
24	244560	VALVE, exhaust; includes item 24a	1
24a*	106555	. O-RING; fluoroelastomer	1
25	197966	CAP, air valve	1
26	244714	NEEDLE, fluid; includes item 26a	1
26a	112691	. SPRING, compression	1
27	244927	RING, retaining, air cap; includes item 27a	1
27a*	198307	. PACKING, u-cup	1
28	276695	HOOK	1
30	276698	TRIGGER	1
35	185105	FITTING, air; left-hand threads	1

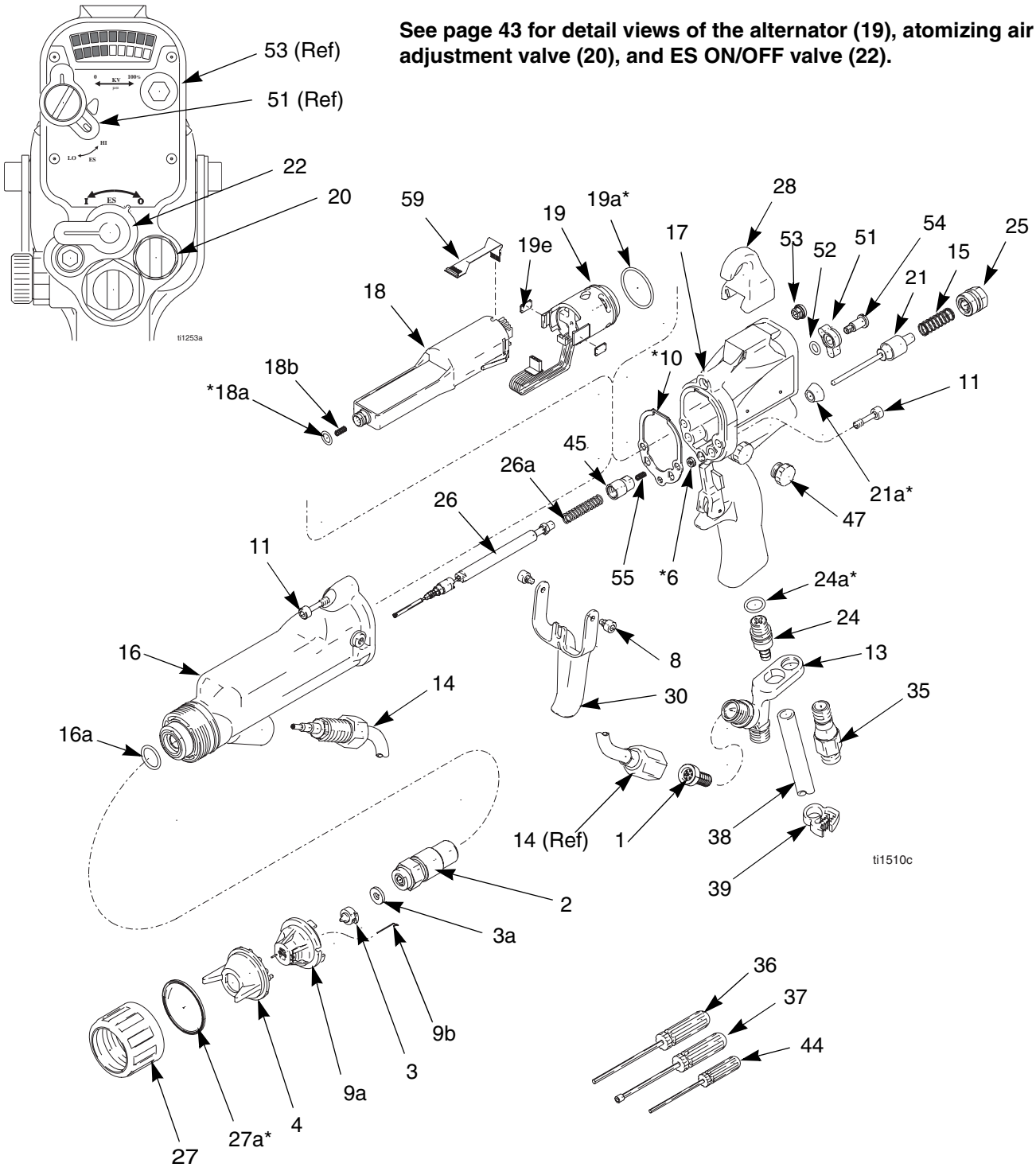
Ref. No.	Part No.	Description	Qty
36	107460	WRENCH, ball end; 4 mm	1
37	110087	DRIVER, hex nut; 9 mm	1
38	185103	TUBE, exhaust	1
39	110231	CLAMP	1
40	116553	GREASE, dielectric, tube (not shown)	1
41	244915	COVER, gun; box of 10 (not shown)	1
42	179791	TAG, warning (not shown); replacement available at no cost	1
43	180060	SIGN, warning (not shown); replacement available at no cost	1
44	112080	TOOL, needle; 2 mm	1
45	198516	CAP, spring	
47	197967	PLUG	1
48	198058	SCREW, cap, socket hd	1
49	222385	CARD, warning (not shown); replacement available at no cost	1
50	188774	TAG, warning (not shown); replacement available at no cost	1

* Included in Air Seal Repair Kit 244781.

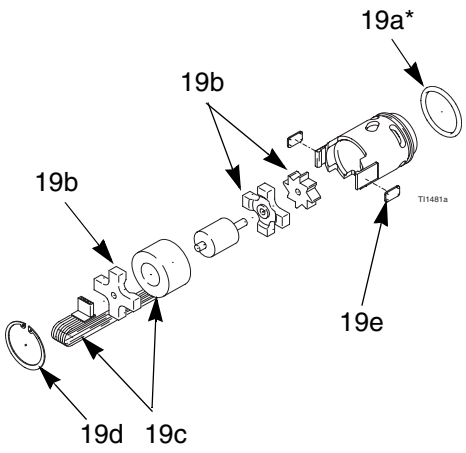
Replacement Warning labels, signs, tags, and cards are available at no cost.

Part No. 244573 85 kV Electrostatic Gun, Series A (items 1-59)

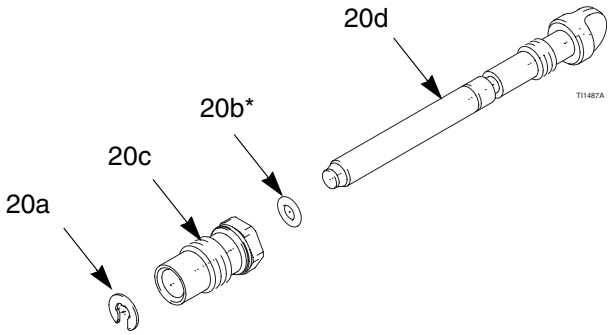
See page 43 for detail views of the alternator (19), atomizing air adjustment valve (20), and ES ON/OFF valve (22).



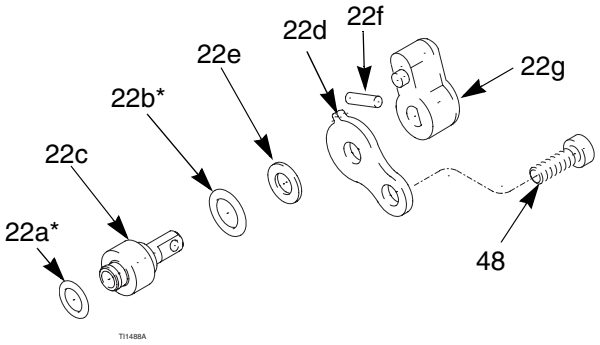
Ref. No. 19: Alternator



Ref. No. 20: Atomizing Air Adjustment Valve



Ref. No. 22: ES ON/OFF Valve



Part No. 244573 85 kV Electrostatic Gun, Series A (items 1-59)

Ref. No.	Part No.	Description	Qty
1	205264	FILTER, fluid, inline	1
2	245280	HOUSING, seat	1
3	GG3XXX	SPRAY TIP (customer's choice); includes item 3a	1
3a	183459	. SEAL, spray tip	1
4	276767	TIP GUARD	1
6*	188749	PACKING, u-cup, air valve; UHMWPE	1
8	197369	SCREW, trigger	2
9	245276	AIR CAP ASSEMBLY	1
9a	198679	. AIR CAP	1
9b	244917	. ELECTRODE (kit of 5)	1
10*	197517	GASKET, barrel	1
11	197518	SCREW; socket-hd; 10-24 x 3/4 in. (19 mm)	3
13	197832	BRACKET, inlet, fluid	1
14	244713	TUBE, fluid	1
15	185116	SPRING, compression	1
16	244531	BARREL, gun; includes item 16a	1
16a	197486	. O-RING; conductive	1
17	245288	HANDLE, gun	1
18	244541	POWER SUPPLY, 85 kV; includes items 18a-18b	1
18a*	103337	. O-RING; Viton®	1
18b	197624	. SPRING, compression	1
19	244555	TURBINE, alternator; includes items 19a-19e	1
19a*	110073	. O-RING; Viton®	1
19b	223688	. BEARING KIT; includes front and rear bearings and fan	1
19c	244577	. COIL	1
19d	111745	. RING, retaining	1
19e	198821	. PAD, pressure	2
20	244556	VALVE, adjustment, atomizing air; includes items 20a-20d	1
20a	101021	. RING, retaining	1
20b*	106560	. O-RING; fluorocarbon	1
20c	197566	. HOUSING, valve	1
20d	197567	. STEM, valve	1
21	244557	VALVE, air; includes item 21a	1
21a*	276733	. SEAL; fluoroelastomer	1
22	244558	VALVE, electrostatics, ON/OFF; includes items 22a-22g	1
22a*	111516	. O-RING; CV75	1
22b*	113137	. O-RING; fluoroelastomer	1
22c	198403	. SHAFT, valve	1
22d	198404	. PLATE, retaining	1
22e	198453	. WASHER	1
22f	198464	. PIN	1
22g	276753	. KNOB	1
24	244560	VALVE, exhaust; includes item 24a	1
24a*	106555	. O-RING; fluoroelastomer	1
25	197966	CAP, air valve	1
26	244714	NEEDLE, fluid; includes item 26a	1
26a	112691	. SPRING, compression	1
27	244927	RING, retaining, air cap; includes item 27a	1
27a*	198307	. PACKING, u-cup	1
28	276695	HOOK	1
30	276698	TRIGGER	1

Ref. No.	Part No.	Description	Qty
35	185105	FITTING, air; left-hand threads	1
36	107460	WRENCH, ball end; 4 mm	1
37	110087	DRIVER, hex nut; 9 mm	1
38	185103	TUBE, exhaust	1
39	110231	CLAMP	1
40	116553	GREASE, dielectric, tube (not shown)	1
41	244915	COVER, gun; box of 10 (not shown)	1
42	179791	TAG, warning (not shown); replacement available at no cost	1
43	180060	SIGN, warning (not shown); replacement available at no cost	1
44	112080	TOOL, needle; 2 mm	1
45	198516	CAP, spring	1
47	197967	PLUG	1
48	198058	SCREW, cap, socket hd	1
49	222385	CARD, warning (not shown); replacement available at no cost	1
50	188774	TAG, warning (not shown); replacement available at no cost	1
51	244627	SWITCH, ES HI/LO	1
52	111450	O-RING	1
53	276734	PLUG, LO voltage adjustment	1
54	197910	SCREW, pivot	1
55	197624	SPRING, grounding	1
59	245265	CIRCUIT, flexible	1

* Included in Air Seal Repair Kit 244781.

Replacement Warning labels, signs, tags, and cards are available at no cost.

Accessories

Air Line Accessories

AirFlex™ Flexible Grounded Air Hose

100 psi (7 bar, 0.7 MPa) Maximum Working Pressure
0.315 in. (8 mm) ID; 1/4 npsm(f) x 1/4 npsm(f) left-hand thread

244963 6 ft (1.8 m)
244964 15 ft (4.6 m)
244965 25 ft (7.6 m)
244966 36 ft (11 m)
244967 50 ft (15 m)
244968 75 ft (23 m)
244969 100 ft (30.5 m)

Standard Grounded Air Hose

100 psi (7 bar, 0.7 MPa) Maximum Working Pressure
0.315 in. (8 mm) ID; 1/4 npsm(f) x 1/4 npsm(f) left-hand thread

223068 6 ft (1.8 m)
223069 15 ft (4.6 m)
223070 25 ft (7.6 m)
223071 36 ft (11 m)
223072 50 ft (15 m)
223073 75 ft (23 m)
223074 100 ft (30.5 m)

Grounded Air Whip Hose

100 psi (7 bar, 0.7 MPa) Maximum Working Pressure
0.188 in. (5 mm) ID; 1/4 npsm(m) x 1/4 npsm(f) left-hand threads

236130 3 ft (0.9 m)
236131 6 ft (1.8 m)

Bleed-Type Master Air Valve

300 psi (21 bar, 2.1 MPa) Maximum Working Pressure
Relieves air trapped in the air line between this valve and the pump air motor when closed.

107141 3/4 npt

Air Line Shutoff Valve

150 psi (10 bar, 1.0 MPa) Maximum Working Pressure
For turning air to gun on or off.

224754 1/4 npsm(m) x 1/4 npsm(f) left-hand thread.

Air Line Quick Disconnect

112534 Swiveling quick disconnect replaces standard air inlet swivel.

Air Hose Adapter Nipple

185493 Use to connect multiple air hoses. 1/4 npt x 1/4 npsm left-hand thread.

Non-Swivel Air Inlet Fitting

185105 Replaces standard swivel. Left-hand thread.

Extended Air Inlet Fitting

189191 Replaces standard swivel to provide extended handle grip area. Left-hand thread.

Fluid Line Accessories

Nylon Fluid Hose

3000 psi (210 bar, 21 MPa) Maximum Working Pressure

223540 1/4 in. (6 mm) ID x 25 ft (7.6 m), 1/4 npsm
223541 1/4 in. (6 mm) ID x 50 ft (15.2 m), 1/4 npsm

Fluid Whip Hose

3000 psi (210 bar, 21 MPa) Maximum Working Pressure
0.125 in. (3 mm) ID; 1/4 npsm(f) x 1/4 npt(m)

236134 3 ft (0.9 m)
236135 6 ft (1.8 m)

Fluid Shutoff/Drain Valve

5000 psi (350 bar, 35 MPa) Maximum Working Pressure
For turning fluid on or off to the gun and for relieving fluid line pressure at the pump.

210657 1/2 npt(m), Viton seals
210658 3/8 npt(m), Viton seals
210659 3/8 npt x 1/4 npt(m), Viton seals
214037 1/4 npt(m), PTFE seals

Fluid Swivel

5800 psi (405 bar, 40 MPa) Maximum Working Pressure

115898 1/4 npsm(m) x 1/4 npsm(f)

Gun Accessories

Gun Repair Kit
244781 Air Seal Repair Kit

Electrode Replacement Kit
244917 Includes five electrodes.

Inline Fluid Filters
238561 100 mesh filter. Set of three.
238563 60 mesh filter. Set of three.

Round Pattern Kit
Provides higher level of performance to electrostatic spraying.
245282 Includes tip of choice.

ES Always On Kit
244913 Replaces inlet fitting with ball valve to shut off air during flushing. Converts ES ON/OFF valve to always ON condition.

Handle Grips
245263 Medium Grip
245264 Large Grip

Gun Washer Kit
245271 Use to convert Graco gun washers so they can clean PRO Xs4 air-assisted spray guns.

Gun Valve Lubricant
111265 4 oz (113 g) tube of sanitary (non-silicone) lubricant for fluid seals and wear areas.

Alternator Bearing Kit
223688 To repair the turbine alternator.

Cleaning Brush
105749 For cleaning air cap and fluid nozzle.

Miscellaneous Accessories

Ground Wire and Clamp
222011 For grounding pump and other components and equipment in the spray area. 12 gauge, 25 ft (7.6 m).

Megohmmeter
241079 500 Volt output; 0.01-2000 megohms. ***Not for use in hazardous areas.***

Paint Resistance Meter
722886 Use with 722860 Paint Probe to measure resistance of paint. ***Not for use in hazardous areas.***

Paint Probe
722860 Use with 722886 Paint Resistance Meter to measure resistance of paint. ***Not for use in hazardous areas.***

Safety Warning Sign
180060 English Warning Sign. FM Approved. Available at no charge from Graco.

Instruction Signs
198310 English Setup Instructions.
198320 English Daily Care Instructions.

Spray Tip Selection Chart

Part No.	Fan Width at 10 in. (250 mm) in. (mm)	Orifice Size in. (mm)
GG3107	2-4 (50-100)	0.007 (0.178)
GG3207	4-6 (100-150)	
GG3307	6-8 (150-200)	
GG3209	4-6 (100-150)	0.009 (0.229)
GG3309	6-8 (150-200)	
GG3409	8-10 (200-250)	
GG3211	4-6 (100-150)	0.011 (0.279)
GG3311	6-8 (150-200)	
GG3411	8-10 (200-250)	
GG3511	10-12 (250-300)	
GG3611	12-14 (300-350)	
GG3213	4-6 (100-150)	0.013 (0.330)
GG3313	6-8 (150-200)	
GG3413	8-10 (200-250)	
GG3513	10-12 (250-300)	
GG3613	12-14 (300-350)	
GG3215	4-6 (100-150)	0.015 (0.381)
GG3315	6-8 (150-200)	
GG3415	8-10 (200-250)	
GG3515	10-12 (250-300)	
GG3615	12-14 (300-350)	

Part No.	Fan Width at 10 in. (250 mm) in. (mm)	Orifice Size in. (mm)
GG3217	4-6 (100-150)	0.017 (0.432)
GG3317	6-8 (150-200)	
GG3417	8-10 (200-250)	
GG3517	10-12 (250-300)	
GG3617	12-14 (300-350)	
GG3319	6-8 (150-200)	0.019 (0.483)
GG3419	8-10 (200-250)	
GG3519	10-12 (250-300)	
GG3619	12-14 (300-350)	
GG3719	14-16 (350-400)	
GG3421	8-10 (200-250)	0.021 (0.533)
GG3521	10-12 (250-300)	
GG3621	12-14 (300-350)	
GG3721	14-16 (350-400)	
GG3821	16-18 (400-450)	
GG3423	8-10 (200-250)	0.023 (0.584)
GG3523	10-12 (250-300)	
GG3623	12-14 (300-350)	
GG3723	14-16 (350-400)	
GG3823	16-18 (400-450)	
GG3425	8-10 (200-250)	0.025 (0.635)
GG3525	10-12 (250-300)	
GG3625	12-14 (300-350)	
GG3725	14-16 (350-400)	
GG3825	16-18 (400-450)	

Technical Data

Category	Data
Maximum Working Fluid Pressure	3000 psi (21 MPa, 210 bar)
Maximum Working Air Pressure	100 psi (0.7 MPa, 7 bar)
Minimum Air Pressure to Gun Inlet	40 psi (0.28 MPa, 2.8 bar)
Maximum Fluid Operating Temperature	120°F (48°C)
Paint Resistivity Range	3 megohm/cm to infinity
Short Circuit Current Output	125 microamperes
Voltage Output	PRO Xs4 AA (244572): 85 kV PRO Xs4 AA (244573): 40-85 kV
Sound Power (measured per ISO Standard 9216)	at 40 psi (0.28 MPa, 2.8 bar): 88.9 dB(A) at 100 psi (0.7 MPa, 7 bar): 99.7 dB(A)
Sound Pressure (measured 1 m from gun)	at 40 psi (0.28 MPa, 2.8 bar): 86.0 dB(A) at 100 psi (0.7 MPa, 7 bar): 95.0 dB(A)
Air inlet fitting, left-hand thread	1/4 npsm(m)
Fluid inlet fitting	1/4-18 npsm(m)
Gun Weight	29.1 oz (825 g)
Gun Length	11.4 in. (29 cm)
Wetted Parts	Stainless Steel; Nylon, Acetal, Ultra-High Molecular Weight Polyethylene, Fluoroelastomer, PEEK, Tungsten Wire, Polyethylene

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612-378-3505 Fax

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